

# DDS FUNCTION GENERATOR

## ATFxxB Series Function Generator(ATF10B / ATF20B)



ATF10B 1μHz~10MHz

ATF20B 1μHz~20MHz

### INTRODUCTION

ATFxxB series Function generator uses Direct Digital Synthesis (DDS) technology. Its outstanding performance and system features make it a perfect solution for your testing requirement. The simplified and optimized design of the front panel and dual-language (English/Chinese) TFT display interface make your testing much easier for operation and observation. Additionally, the extendable optional functions can also improve your system characteristics.

### FEATURES

- Direct Digital Synthesis(DDS) technology, 2 independent output channels
- 3.5-inch TFT LCD display
- High Frequency Resolution: full-range resolution is 40 MHz
- Store 40 sets of the user parameters and recall
- 32 kinds of standard or build-in fixed waveforms
- Minimum stable output waveform: 1mV(50Ω)
- Multiple modulation functions: FM, FSK, ASK, PSK
- Frequency sweep, amplitude sweep and burst functions
- Count the frequency, period, amplitude RMS value or peak-to-peak value
- Over-voltage, over-current, output short-circuit and reverse voltage protections
- High reliability: use VLSI components and surface mount technology
- Power Amplifier: optional part, maximum output power up to 7W
- Optional configurations: RS232 interface, Frequency Counter, Power Amplifier

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### Output A Characteristics

WAVEFORM	Waveform type	32 kinds, such as Sine, Square, Triangle, Pulse etc
	Waveform length	1024 points
	Sample rate	100 MSa/s
	Vertical resolution	8 bits
	Harmonic rejection (sine)	40dBc (< 1MHz), 35dBc (1MHz~20MHz)
	Total distortion(sine)	1% (20Hz ~ 200kHz)
	Rise/fall time of square	35ns
	Overshoot	10%
	Square duty cycle	1% ~ 99%
FREQUENCY	Frequency range	1 $\mu$ Hz ~ max. frequency(sine), 1 $\mu$ Hz ~5MHz(Square), 1 $\mu$ Hz ~1MHz(other waveforms)
	Frequency Resolution	1 $\mu$ Hz
	Frequency Accuracy	$\pm$ (50ppm + 1 $\mu$ Hz)
AMPLITUDE	Amplitude range	2mVpp ~ 20Vpp 1 $\mu$ Hz~10MHz (high impedance) 2mVpp ~ 15Vpp 10MHz~15MHz (high impedance) 2mVpp ~ 8Vpp 15MHz~20MHz (high impedance)
	Amplitude Resolution	20mVpp (amplitude>about 2 Vpp), 2mVpp (amplitude<about 2Vpp)
	Amplitude Accuracy	$\pm$ (1% + 2mVrms) ( high impedance, 1kHz, sine)
	Amplitude Flatness	$\pm$ 5% (<10MHz), $\pm$ 10% (> 10MHz)
	Amplitude stability	$\pm$ 0.5%/ 3 hours
	Output impedance	50 $\Omega$
OFFSET	Offset Range	$\pm$ 10V (high impedance, attenuation 0dB)
	Offset Resolution	20mVdc
	Offset accuracy	$\pm$ (1% + 20mVdc)
SWEEP	Sweep Type	Frequency or amplitude Sweep
	Sweep Mode	Linear or log sweep
	Sweep Range	Free to set the start and stop points
	Sweep Time	100ms~900s
	Sweep Direction	Up, down, up-down
	Control mode	Automatic or manual sweep
FM	Carrier signal	Channel A signal
	Modulating signal	internal signal of Channel B or external signal
	FM depth	0% ~ 20%
SHIFT KEYING	FSK	free to set the carrier and hop frequency
	ASK	free to set the carrier and hop amplitude
	PSK	Hop Phase: 0 ~ 360 $^{\circ}$ , Max. resolution: 1 $^{\circ}$
	Alternate rate	10ms ~ 60s
BURST	Burst count	1~65000 cycles
	Burst mode	internal, external, single

## Output B Characteristics

WAVEFORM	Waveform type	32 kinds, such as sine, square, triangle, pulse etc
	Waveform length	1024 points
	Sample rate	12.5 MSa / s
	Amplitude resolution	8 bits
	Square duty cycle	1% ~ 99%
FREQUENCY	Frequency range	1 $\mu$ Hz ~ 1MHz(sine) 1 $\mu$ Hz~100kHz (other waveforms)
	Frequency Resolution	1 $\mu$ Hz
	Frequency Accuracy	$\pm (1 \times 10^{-5})$
AMPLITUDE	Amplitude range	50mVpp ~ 20Vpp (high impedance)
	Amplitude Resolution	20mVpp
	Output impedance	50 $\Omega$
BURST	Burst count	1~65000 cycles
	Burst mode	internal, external, single

## TTL Output Characteristics

TTL	Waveform	rise/fall time 20ns (square)
	Frequency	10MHz ~ 1MHz
	Amplitude	TTL,CMOS compatible, low level <0.3V,high level >4V

## GENERAL CHARACTERISTICS

Power Supply	AC220V (1 $\pm$ 10%) AC110V (1 $\pm$ 10%) (Pay attention to the voltage selection on rear panel)
Frequency	50Hz (1 $\pm$ 5%)
Power Consumption	< 45VA
Operating Temperature	0 $^{\circ}$ C to +40 $^{\circ}$ C
Operating Humidity	80% R.H
Operation Characteristics	Keypad operation and rotary knob operation
Dimensions	415mm x 295mm x 195mm
Display	TFT display, 320*240
Weight	3.5kg

## ACCESSORIES INCLUDED

Standard		Optional Parts
ATFxxB Series DDS Function Generator	1 unit	RS232 interface
Power cord	1 pc	Power amplifier (Mode/No: ATF20B/PA/232)
Q9 testing cable	1 Pc	Frequency counter (Mode/No: ATF20B/FC/232)
Q9 BNC-clip test lead	1 pc	
User's Guide	1 pc	
RS232 cable (optional)	1 pc	